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AUTHOR Parke, Ross D.; And Others
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ABSTRACT

A research study was conducted to: (1) compare mother and father interactions with their newborn infant; (2) examine the effects of maternal drugs on mother-father infant interaction; (3) explore the impact of variations in length of labor on parent interaction; and (4) examine sex of parent and sex of newborn interactions to determine the nature of parental responsiveness to newborns of different sexes. Ss were 19 Caucasian couples and their firstborn infants. Infants were normal and full term--9 males and 10 females. Amount and type of medication was recorded and rated according to effects on the infant. All observations took place in the mother's hospital room between 6 and 48 hours after delivery. An observer brought in the baby and asked to whom it should be given. During the 10-minute observation session, one male and one female observer recorded occurrences of parental or infant behavior. Results showed the father was twice as likely as the mother to hold the infant and equaled here in the extent to which he looked at, touched, and vocalized. Analysis of variance revealed that both mothers and fathers touched male babies significantly more than females. Product-moment correlations computed for mothers and fathers between the parental behaviors and medication level revealed that the amount of maternal medication altered the subsequent social interactions between the baby and his parents. Follow-up studies of the social interactions experienced by high- and low-drug babies may yield evidence of the impact of maternal medication on infants' intellectual development. (KM)

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MOTHER-FATHER-NEWBORN INTERACTION: EFFECTS OF MATERNAL MEDICATION, LABOR, AND SEX OF INFANT

ROSS D. PARKE,
Fels Research Institute and University of Cincinnati College of Medicine
SANDRA E. O'LEARY, and STEPHEN WEST
School of Nursing, University of Wisconsin *University of Wisconsin*

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Mother-newborn interaction has received increased attention in recent years (Richards & Bernal, 1971), but the father's role in the newborn period remains unexplored. One aim of the current research is to compare mother and father interactions with their newborn infant.

For a number of years, it has been known that analgesics and anesthetics commonly employed during labor and delivery affect the behavior of the newborn infant (Bowes, 1970). Brazelton (1962) found that feeding patterns are altered by maternal medication. To extend this earlier work to an examination of the effects of maternal drugs on mother-father infant interaction was another purpose.

Just as medication is important, length of labor may affect the behavior of both the newborn and his mother and, therefore, the type of subsequent social interaction with his parents. McGrade, Kessen, and Leutzendorff (1965), for example, found that short-labor infants were more active than long-labor infants. The impact of variations in length of labor on parent interaction will be explored in this study.

The final aim was to examine sex of parent - sex of newborn interactions to determine the nature of parental responsiveness to babies of different sexes in this early period.

METHOD

Subjects

Ss were 19 Caucasian couples and their firstborn infants. Both parents were well educated; mothers ranged in age from 19 - 30 yr., and fathers ranged between 20 - 38 yr. of age. With one exception, the fathers were present during labor and delivery. The infant sample consisted of 19 full-term single-birth infants—9 males and 10 females. All of the infants were judged by the attending physician to be normal newborns without complications. With the exception of one Caesarian section, all births were spontaneous delivery or by use of low forceps, vertex presentation.

Modifying Variables

The amount and type of medication received by the mother from the time of her entrance to the hospital to the delivery of the child was secured from the medical record. The medications mothers received in labor and delivery included Phenobarbital, Demerol, Vistaril, and Morphine. Paracervical, epidural, and pudendal blocks and inhalation anesthesia were occasionally used. An experienced obstetrician rated the medication received by each mother on a 1 - 10 scale in terms of the effects of the drugs on the infant. These ratings agreed quite closely with a drug weighting system devised by Bell, Weller, and Waldrop (1971). Length of labor was the time between entrance to the hospital and birth of the child, as indicated on the hospital record.

Prodecure

All observations took place in the mother's hospital room between 6 - 48 hr. after delivery. For an observation session, the infant was brought to the mother's room and the *O* asked "Whom shall I give the baby to?" The baby was then handed to the parent who indicated preference and the 10-min. observation session began. The observation period was divided into 40 15-sec. intervals and, for each interval, *O* recorded the occurrence of parental or infant behavior. The following infant behaviors were recorded: cry, vocalize, move, mouth movements with and without object, look at mother, look at father, look around. For both mother and father, the following behaviors were recorded: looks, smiles, vocalizes, holds, kisses, touches, rocks, imitates infant, explores infant, feeds, and hands over to the other parent.

Observer training and reliability assessment. The main *O* was a 30-yr.-old female nurse; for reliability estimates, a male of the same age was present. Prior to field observations, the two *O*s achieved a percentage agreement between 88 - 100% on all categories of infant, maternal, and paternal behaviors using films of parent-infant interaction. Both *O*s were present for six observation sessions of mother-father-infant interaction. Interrater reliability was assessed by calculating the percentage of occasions across the 40 15-sec. time intervals that the *O*s agreed with each other. The mean percentage reliabilities ranged between 86 - 100% agreement between the two *O*s for each behavior category.

RESULTS AND IMPLICATIONS

In Fig. 1, the frequency of maternal and paternal behaviors directed toward the infant are depicted. Of interest is the fact that the father was a very active participant in the family triad. He was twice as likely as the mother to hold the infant and equaled her in the extent to which he looked at, touched, and vocalized. In fact, the only behavior in which the mother was significantly more active than the father was smiling. These data are not consistent with previous reports that father-infant interaction is infrequent in the first few weeks and months of life. However, age, sample, and setting differences precluded any resolution of these discrepancies. Moreover, the father was observed in a social context likely to stimulate active involvement, i.e., in the presence of the mother. Observations of fathers alone with their newborn infants are necessary to evaluate the effects of the presence of the mother on father-newborn interaction ($F = 8.24$, $df = 1/17, p < .01$).

Analysis of variance was used to assess the effects of sex of infant on parental interaction. Only one sex difference was present: both mothers and fathers touched male babies significantly more than female infants.

To assess the effects of maternal medication and labor on parent-infant interaction, product-moment correlations were computed for mothers and fathers between the parental behaviors and medication level and labor length, respectively.

For mothers, there were significant positive correlations between medication and touching ($r = .47$, $df = 17$,

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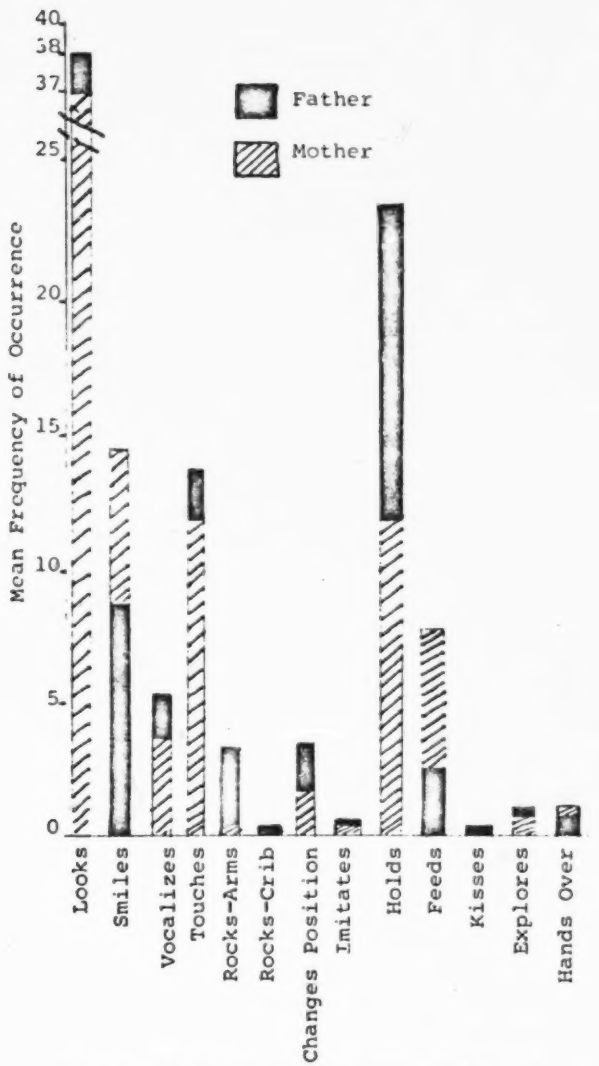

Fig. 1. Mother-father behaviors in the presence of infant.

$p < .05$), rocking ($r = .41$, $p < .05$), and holding ($r = .44$, $p < .05$) their infants. A similar but nonsignificant trend was present for vocalization as well ($r = .33$). While the correlations between medication level and father behavior were nonsignificant, their direction was opposite that observed for mothers ($rs = -.34, -.24, -.30$ for vocalize, rock, and hold, respectively). Although none of the correlations between length of labor and parental behaviors was significant, there were some trends (e.g., $rs = .34$ and .30 for maternal holding and touching, respectively; $rs = -.25$ and $-.24$ for paternal vocalization and holding behaviors, respectively). These results, in combination with the recent caution by Kraemer, Korner, and Thomas (1972) concerning the necessity of differentiating the effects of drugs from length of labor, led to a series of partial correlations in order to remove the effects of labor on the medication - parental response correlations. With length of labor held constant, significant positive correlations between drug level and maternal vocalization ($r = .47$, $df = 16$, $p < .05$) and maternal rocking ($r = .62$, $df = 16$, $p < .05$) were present. Again, fathers showed opposite trends ($rs = -.23$ and $-.22$ for vocalization and rocking, respectively); To evaluate the reliability of the differences between the maternal and paternal correlations for rocking and vocalization, r_z transformations were performed. The correlations were significantly different ($z = 2.05$, $df = 16$, $p < .05$; $z = 2.62$, $p < .05$). indicating that maternal medication had a differential impact on maternal and paternal behaviors. Maternal interaction with the infant increased as medication increased, while fathers' interaction decreased with infants of highly medicated mothers. It is clear that the amount of maternal medication received during childbirth process altered the subsequent social interactions between baby and his parents. A variety of reasons can be offered for these differences, but without observations of the father alone and mother alone with the infant, as well as independent observations of the newborn, any explanations are highly speculative. Possibly, father prefers an active awake infant and leaves the task of stimulating the lethargic offspring of a high medication birth to the mother.

In addition, the high medication mother may be more anxious concerning the state of her infant's health and may stimulate the infant more in an attempt to increase his responsiveness; in addition, she may be more reluctant to surrender the infant to her less experienced partner.

The implications of this type of data for other maternal medication studies warrants attention. Although recent data have shown that the infants' information processing capacities, as indexed by habituation rates, are related to maternal medication (Conway & Brackbill, 1970), little is known concerning the mediating factors in these long-term effects. Since other evidence indicates that the amount and quality of social stimulation are determinants of habituation (Lewis, 1969), follow-up examinations of the social interactions experienced by high- and low-drug babies may yield some important clues to the impact of maternal medication on the infants' intellectual development.

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